

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently Amended): A driving control device for a motor having a plurality of multi-phase coils ~~for generating~~configured to generate a rotating magnetic field to cause a rotor to rotate, comprising:

a ~~phase current-measuring device for measuring~~configured to measure one or more ~~a~~ phase ~~current or currents~~[[,]] among selected from a plurality of independent phase currents ~~of corresponding to the plurality of multi-phase coils, of a number of phase currents being measured limited to in a range between one and a number smaller than a total number of the independent phase currents;~~

a control signal generating circuit ~~for estimating~~connected to said measuring device and configured to estimate a state of a ~~said~~ motor by using the measured one or more phase ~~current or currents and one of a motor model or and a model showing a state of the motor,~~ said control signal generating circuit further configured to generate a driving control signal based on ~~an estimation result to be supplied to the motor~~ said estimated state, said driving control signal used by said driving control device to control each of the phase currents;

wherein

~~each of the phase currents of the motor is controlled based on the driving control signal supplied from the control signal generating circuit.~~

Claim 2 (Currently Amended): A driving control device for a motor having a plurality of multi-phase coils ~~for generating~~configured to generate a rotating magnetic field to cause a rotor to rotate, comprising:

~~an addition phase current~~ a measuring device for measuring ~~configured to measure one or more~~ an addition phase current or currents selected from a plurality of addition phase currents, of a number of phase currents being measured limited to ~~in~~ a range between one and a number smaller than a total number of addition phase currents, the addition phase current being an addition of phase currents of at least two of the plurality of multi-phase coils; and

a control signal generating circuit connected to said measuring device and configured to estimate ~~for estimating~~ a state of ~~a~~ said motor by using the measured one or more addition phase ~~current or currents~~ and one of a motor model ~~or~~ and a model showing a state of the motor said control signal generating circuit further configured to generate a driving control signal based on said estimated state, said driving control signal used by said driving control device to control each of the phase currents ~~an estimation result to be supplied to the motor,~~

wherein

~~each of the phase currents of the motor is controlled based on the driving control signal supplied from the control signal generating circuit.~~

Claim 3 (Currently Amended): The device according to claim 2, further comprising:

a ~~neutral point current~~ second measuring device ~~for measuring~~ configured to measure a current flowing between neutral points of two of the plurality of multi-phase coils, the two multi-phase coils being connected to each other at respective neutral points,

wherein

the ~~addition phase current measuring device measures~~ number of phase currents being measured is at least two ~~addition phase currents,~~ and

the control signal generating ~~circuit~~ circuit is connected to said second measuring device and is further configured to use ~~utilizes~~ the measured neutral point current, the at least

two measured addition phase currents, and said motor model is a linear model~~as the motor model or the model showing a state of the motor.~~

Claim 4 (Currently Amended): The device according to claim 2, further comprising:
a ~~neutral point current~~second measuring device ~~for measuring~~configured to measure a current flowing between neutral points of two of the plurality of multi-phase coils, the two multi-phase coils being connected to each other at respective neutral points,

wherein

the number of phase currents being measured is at least two, and

the control signal generating circuit is connected to said second measuring device and is further configured to use~~circuits utilizes~~ the measured neutral point current, the at least two measured addition phase currents, and said motor model is a non-linear model~~as the motor model or the model showing a state of the motor.~~

Claim 5 (Currently Amended): The device according to claim 2, wherein at least two of the plurality of multi-phase coils are independent, the addition phase current measuring device ~~measures~~is configured to measure at least two addition phase currents, and the ~~control signal generating circuit utilizes~~motor model is a linear model~~as the motor model or the model showing a state of the motor.~~

Claim 6 (Currently Amended): The device according to claim 2, wherein at least two of the plurality of multi-phase coils are independent, and the ~~control signal generating circuit utilizes~~motor model is a non-linear model~~as the motor model or the model showing a state of the motor.~~

Claim 7 (Currently Amended): The device according to claim 2, wherein the plurality of multi-phase coils is a three-phase coil.

Claim 8 (Currently Amended): The device according to claim 1, further comprising:
a ~~neutral point current~~second measuring device ~~for measuring~~configured to measure a current flowing between neutral points of two of the plurality of multi-phase coils, the two multi-phase coils being connected to each other at respective neutral points,

wherein

the number of phase currents being measured is at least two, and

the control signal generating circuits utilizes the measured neutral point current, the at least two measured addition phase currents, and the motor model is a non-linear model~~as the motor model or the model showing a state of the motor.~~

Claim 9 (Currently Amended): The device according to claim 1, wherein at least two of the plurality of multi-phase coils are independent, and the ~~control signal generating circuit utilizes~~motor model is a non-linear model~~as the motor model or the model showing a state of the motor.~~

Claim 10 (Currently Amended): The device according to claim 1, wherein the plurality of multi-phase coils is a three-phase coil.